**5.2 Multiplying Monomials**

xn  x is called the base

n is called the power or exponent

The power tells how many times to multiply the base by itself.

34 = 3 • 3 • 3 • 3

y4 = y • y • y • y

**Product Rule for Exponents**

x2 •x4 = (x • x) • (x • x • x • x)

= x • x • x • x • x • x

=

To multiply monomials with like bases, keep the base and add the exponents.

Ex 1 m5 • m3 =

Ex 2 23 • 24 =

Ex 3 a4 • a2 • a5 =

Ex 4 m3 • n5 • m2 • n4 =

**Power Rule for Exponents**

(b2)3 = b2 •b2 •b2

= (b • b) • (b • b) • (b • b)

= b • b • b • b • b • b

=

To raise a power to a power, keep the base and multiply the exponents.

Ex 5 (m3) 4 =

Ex 6 (a5) 3 =

**Product to a Power Rule for Exponents**

Raise each factor in the product to the power.

Ex 7 (xy)3 =

Ex 8 (5m3)2 =

Ex 9 ( -3 st4)3 =

**Multiplying a Monomial by a Monomial**

Coefficients - normal rules

Exponents – today’s rules

Ex 10 (3y3) ( 7y4) =

Ex 11 ( -4a7b) (6a4b5)

Ex 12 (4x)2 ( -3x4y2) ( x3y4)2